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Title: Cerro Grande Fire:
Laboratory Recovery Lessons to be Learned Report

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Cerro Grande Fire

Laboratory Recovery
Lessons To Be Learned
Report

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TABLE OF CONTENTS (CLICK ON PAGE NUMBER TO ACCESS PAGE DIRECTLY)

1.0 Introduction

On May 7, 2000, with a wind-whipped prescribed burn out of control, the Laboratory announced emergency closure for the following Monday, and did not resume normal occupancy until Monday, May 22. Although the fires were still burning and in some areas still a threat, the Facility Recovery Center commenced operations May 14 to address the challenge of how and what to do to get LANL facilities reopened.

1.1 Purpose

Facility Recovery Center management requested a lessons-to be-learned report be drafted that would give a critique of the functional recovery roles, responsibilities, and operations the Laboratory performed during the emergency recovery period.

1.2 Methodology

Commencing in late August and September, 54 individuals who participated in facility and/or programmatic recovery activities were interviewed (see Attachment B) by the Facility Recovery Center (FRC) Lessons-Learned Team. Those interviewed were programmatic managers; facility managers; DOE; JCNNM, ESH, FWO, S, CCN/IM, BUS Division management and other personnel involved in the emergency recovery. Interviews averaged approximately one hour and consisted of a set of general questions and unstructured discussion. Comments were categorized into data summary sheets.

A Web-based survey, developed to solicit worker input, was distributed to Facility Managers, FWO, S, and ESH Division personnel. Workers were asked to respond to 14 questions, and 62 workers responded (see Attachment C). From the low percentage of respondents, we cannot claim the responses are necessarily representative of the Laboratory. Nonetheless, the authors felt that the survey responses and comments were valuable and should be included in this report.

1.3 Caveat

The scope of this report does not include the Environmental Rehabilitation Project or Cerro Grande Rehabilitation Project. However, given some of the responses, the lines of distinction between these initiatives were blurred for many interviewees, with the perception that it was all “recovery” work.

Information presented is solely based on interviewees’ perceptions, observations, level of knowledge, and experiences. All recommendations are based on this information. In many cases, a more formal assessment process should be utilized to provide a complete and comprehensive Lab-wide evaluation and identify action plans.

1.4 Terminology

In this document, references to “emergency” refer to the event and time period surrounding the Cerro Grande Fire. References to “recovery” or “emergency recovery” are meant to cover any or all activities associated with the effort to re-enter facilities and re-start programmatic work, along with maintaining infrastructure and support services. This also includes the assessments and determinations made for property loss and replacement needs.

2.0 Overview

That the Laboratory was able to accomplish what it did to recover from the Cerro Grande Fire was extraordinary. Many have expressed profound gratitude to the heroic efforts of those responsible for the emergency recovery. The fire emergency recovery galvanized the LANL community in a way that has not been experienced in decades. Divisions reported heightened staff awareness of access issues and FM issues and concerns. In other instances, new institutional procedures were created where a void had been before. Some organizations finally were able to conduct tasks that had been on the “back burner” before the fire, such as a thorough inventory of hazards or decommissioning certain buildings. Some gained efficiencies with consolidation of staff and operations into new replacement buildings that will have improved sitings.

But, for everything that worked, there were also systems or actions that did not work well during the recovery. Perhaps the biggest void that LANL faced was the lack of an institutional emergency contingency plan. A well thought out plan would have provided for the necessary framework, including resources, staffing, and operational backup, that would have moved the Laboratory towards a quicker and efficient return to normal operations.

Without adequate contingency planning, many felt that programmatic recovery was problematic. Programmatic recovery lacked coordinated leadership, resorted to stove piping of resources and efforts, and had to endure cumbersome accounting and procurement processes.

Many felt that, given the circumstances, facility recovery went well. It was an example of effective teaming to get things done, which doesn’t always happen even during routine operations, due to competing pressures. Despite the fact that the LANL Emergency Management Plan calls out for the establishment of facility recovery operations, it is widely acknowledged that creating the Facility Recovery Center (FRC) in the midst of an on-going emergency is not the optimum scenario. But the alternative of not creating it would have impeded the recovery effort significantly. The FRC provided a flawed but effective centralized mechanism to coordinate resources and act as a command control center. The FRC, as it was created, had no identified end point or definition of closure. Some felt recovery actions should have been delayed until processes were stable and

formalized. In actuality, facilities were up and running in nine days with highly auditable documentation.

Few observations related to Los Alamos County, although there is a strong interdependency with the county that should be examined in another venue. Improving LANL/County relationships to better support community disasters and better utilize volunteer resource is necessary.

Within the DOE community, a noteworthy response was from Lawrence Livermore National Laboratory, whose workers in one noontime activity raised $10,000 for LANL workers affected by the fire.

The following sections detail the observations of those involved in the emergency recovery efforts and the lessons to be learned from these efforts and events.

3.0 Management Systems

Oversight, institutional, facility, and programmatic management systems were heavily impacted by the events of the fire emergency and subsequent recovery activities. Most agreed that what was accomplished was extraordinary, despite the lack of pre-existing processes, procedures, roles, responsibilities, and authorities to effectively manage an institutional recovery effort of this magnitude.

3.1 Observation

DOE facility representatives proved invaluable, while normal oversight functions were problematic.

DOE, both LAAO Facility Representatives (FR) and DOE-AL, provided invaluable assistance. Having a common, focused goal and working closely with the developments in the Facility Recovery Center procedure enabled DOE and the Laboratory people to resolve potential issues proactively. Working with facility managers, the FRs facilitated the review and approval process for the facility recovery plans to DOE.

Additional Facility Representatives were brought from other sites within the DOE complex to augment the LAAO FR's coverage of FMUs. But the additional FRs were only available through the facility recovery plan review and approval phase for LANL's nuclear and radiological facilities.

Oversight during the emergency and recovery period was problematic. In particular, external audits, assessments, and/or visits by DOE, DNFSB, and New Mexico regulatory agencies often diverted needed resources away from the task of emergency/recovery.

LESSONS TO BE LEARNED

- The positive contribution and partnering during this recovery effort underscores the need for a fully staffed DOE Facility Representative program at all LANL FMUs, which would be 17 FRs. Currently, there are only eight FRs on site, with four located in NMT facilities.
- Negotiate, with all applicable regulatory and oversight organizations, criteria and protocol for issuance of conditional moratoriums or exemptions for internal and external audits, assessments, LIRs, authorization basis or other contractual requirements that may be affected during a disaster emergency and recovery situation.
- Establish clear institutional guidance and expectations for conditional moratoriums or exemptions, if granted, with appropriate documentation and communication.

3.2 Observation

Most facility management operations lacked adequate depth, resources, and personnel to conduct recovery activities of this magnitude.

Facility management, trying to conduct normal operations and recovery simultaneously, faced competing time and resource demands, especially for those facing significant facility recovery operations or facing both recovery activities and flood-mitigation activities. In many cases, there was just not the depth of resources to conduct a full-scale recovery at the larger FMUs. There were cases where facility management worked overtime to avoid UC contract Appendix F non-compliance for PMs, over-taxing an already-spent staff. Exacerbating this problem was that most FMUs were trying to achieve readiness for re-starting of operations simultaneously, creating a heavy drain on available institutional support services. With a hiring moratorium still in effect, relief was not forthcoming. This contributed to feelings of isolation and perceptions of institutional unresponsiveness.

Some facility management staff lacked adequate knowledge of programmatic operations or lacked access to programmatic staff that could assist in recovery efforts. Some felt their facility teams' damage assessment expertise was inadequate; a lot more damage was found when "experts" came through than when facility management team conducted assessments. Other facility management staff did not have current or consistent lists describing priority buildings. As a result, additional time was required for them to assess which buildings they wanted or needed opened first, before they could proceed with the recovery assessments. Many FMUs lacked comprehensive emergency plans that included recovery contingencies and pertinent programmatic information.

Some felt the de-centralized facility management system contributed to a slow mobilization, inadequate coordination of resources, and some confusion as to what the tasks were. With so little uniformity among the FMUs, adopting a "graded approach" for re-entry/recovery documentation was at best, difficult. Physical boundary lines of FMUs contributed to blurred lines of responsibility, especially in the case of FMU-80, which is responsible for the utilities infrastructure that surrounds and often terminates at buildings owned by other FMUs.

In the best cases, facility management worked with division management, cooperatively establishing and communicating their criteria for re-occupancy and re-start of operations.

LESSONS TO BE LEARNED

- Incorporate criteria for re-entry of facility and re-start recovery procedures for programmatic operations into all facility emergency plans.
- Establish an institutional prioritized list of key or critical facilities for re-start in the event of a lab-wide emergency shutdown. Identify resource re-start requirements for each facility, to be included in any institutional emergency contingency and resource planning.
- Better define the emergency recovery roles and responsibilities for facility management.
- Establish institutional guidance for the development of facility emergency recovery contingency plans.
- Evaluate facility damage assessment expertise, by emergency type; develop expertise internally or establish a mechanism to put in place specialized expertise service contracts, to be activated in an emergency.

3.3 Observation

Guidance and directives to facility management were not adequately communicated or established.

There were perceptions of inconsistency of requirements for re-start after the fire and holiday shutdown procedures. With more reporting and assessments required post-fire, it left many to wonder whether same requirements should be specified in routine situations as well.

Some suggested that, if the EOC or senior management believed the Laboratory (or portions of it) would be closed due to emergency, they should have notified FMs to give them an opportunity to place facilities into safe mode as soon as possible prior to evacuation. As little as four hours of notification prior to evacuation would have saved significant recovery activities and costs, as well as possible loss of programmatic research.

Many emergency response and recovery/re-start procedures, both institutional and facility-specific, are established, defined, and documented for nuclear facilities. Other types of facilities did not have the benefit of this rigor. The institution is deficient in establishing this guidance.

LESSONS TO BE LEARNED

- Establish institutional guidance for emergency response and recovery/re-start procedures for non-nuclear facilities.

- Enhance communication mechanisms and protocols between emergency/recovery and facility management.

3.4 Observation

LANL lacks a defined institutional emergency funding allocation process in the event of a Lab-wide emergency recovery.

In the aftermath of the emergency, LANL lacked established contingency funding process to respond to the Cerro Grande emergency and recovery activities. This proved to be problematic.

The process for obtaining the monies needed for recovery was unrealistic, slow and cumbersome. While facilities where in the throes of assessments for resumption of operations, they were asked to provide their damage estimates. Although, the urgency for such requests was understood (getting a foot in the Congressional door), the deadline for such requests was unreasonable, and submittals were not amendable as new costs or damages were identified.

The speed at which funds became available was inadequate. It was not clear who was responsible for making the priority lists for which projects got funded and in what order. Another comment was that it was difficult to find out how to get requests heard. There was no apparent central mechanism or person to talk to or obtain information. Congress authorized monies within a month of the fire; DOE and Laboratory took three to four months to approve. In some cases, even when division managers knew building monies were coming, the process and signatures required took too long and delayed construction, as subcontractors could not start work until official notification of receipt of monies. Some felt that the fire (emergency recovery) money allocation process needs to be more efficient and equitable.

LESSONS TO BE LEARNED

- Identify an ombudsman or point-of-contact for facility and programmatic staff to act as an advocate in the funding allocation process for recovery activities.
- Evaluate feasibility of creating a disaster-contingency budget and criteria that could provide interim and immediate relief to those incurring recoverable recovery expenses.

3.5 Observation

Financial systems, funding allocation processes and procurement are inadequate for a site-wide emergency recovery effort.

The institution was slow to establish and document clear and concise policies and procedures for accounting, procurement, and time-and-effort

for the emergency/recovery activities. Consequently, BUS staffers, as well as facility and programmatic managers working with the emergency/recovery fiscal operations, found the process frustrating and difficult to work, due to multiple code changes and changing leadership. There still remain unclear guidelines for burdening fire monies. There will likely be unrecoverable costs that have to be absorbed by facilities or programmatic operations, and legacy budget/financial issues extending to future budgets.

LESSONS TO BE LEARNED

- Design, document and communicate contingency financial systems, procurement processes, and time-and-effort procedures that may be enacted during a Lab-wide emergency and recovery event, and which are auditable.
- Identify a special liaison for emergency budget, procurement, and time-and-effort to interface with LANL community and act as a single point of contact.

3.6 Observation

The Laboratory lacks a comprehensive institutional contingency plan that provides management and workers, with a road map for emergency recovery activities.

The Laboratory's Emergency Management Plan provides insufficient guidance to address a comprehensive strategy for a Lab-wide emergency recovery effort. Consequently, there are no institutional processes and procedures sufficiently defined, communicated, and trained to, with authorities and responsibilities defined and understood. In addition, the complexity of a site-wide emergency recovery coupled with the management structure of the Laboratory contributed to fragmented and dispersed oversight of recovery activities.

No individual facility or programmatic entity can support, staff or fund a long-term recovery effort on its own or absorb costs related to extensive damage.

LESSONS TO BE LEARNED

- Establish a comprehensive institutional emergency and recovery contingency plan that is documented, communicated, and trained-to.
- Ensure that ISM, ISSM and SWPs are integrated into any newly created institutional emergency and recovery contingency plan.

3.7 Observation

Lack of an institutionally coordinated and integrated process to manage a site-wide emergency recovery effort resulted in vague emergency recovery roles and responsibilities and conflicting authorities for management.

For many aspects of the recovery effort, organizational hierarchy and institutional functionality were problematic. During the emergency recovery effort, the Laboratory was inventing the processes as events happened. But these evolving stages or phases of the process were not always clearly communicated. They also did not always provide strong or adequate institutional guidance for both facility and programmatic emergency recovery operations, including work control processes and re-start activities, or provide adequate coordination and integration between institutional emergency response and facility recovery operations. Some observed redundancy among LANL organizations, resulting in poor use of resources, duplication of effort and turf guarding.

Some felt that senior management did not present a strong, coordinated leadership presence. Lack of LANL participation in the TA-18 dam negotiations between DOE and the Army Corps of Engineers leaves a legacy of many unresolved safety and quality issues for which LANL has contractual requirements, including Unresolved Safety Question Determinations.

The flood scenario developed a second emergency, introducing many unknown variables. This prompted political wrangling about roles and responsibilities and ownership and siphoned off attention and resources from the recovery effort.

There was a perception that organizational structure contributed to fragmented or conflicting authorities. As DLDOPS was trying to recover everything, it was evident it did not have authority over everybody, resulting in directives being dismissed or ignored

LESSONS TO BE LEARNED

- Review organizational structure and requirements of emergency operations for Lab-wide emergency and recovery response preparedness. This would include recovery, breadth of activities, resources and personnel required, contingency planning, and necessary guidance and training.
- Integrate facility and programmatic emergency response and recovery response strategies, evaluating interdependence, relationship, and potential impacts.
- Engage strong and deliberate directives from executive management to Lab managers and workers for expectations, authorities, and execution of emergency recovery activities.

3.8 Observation

Institutional and Emergency Recovery communications are inadequate.

Emergency recovery communications were problematic, from the standpoint of both the message and the means.

Communication devices continued to be a weak link, with cellular and landline phones not always working adequately. The lack of a direct line for the FRC hampered their operations. Not having an available cache of dedicated emergency communication devices was also problematic. At some FMUs that sustained damage, communications between buildings are still not available because of limited US West resources.

Communications to the public and to workers about recovery was perceived as inadequate.

There were no communication contingency plans for senior managers, preventing some from comprehending the complexity of the situation and needs. With the lack of institutional re-start requirements, many felt senior management did not fully understand what was required of them. Consequently, the perception was that the LIM seemed chaotic and communication with the SET was difficult and time-consuming.

LESSONS TO BE LEARNED

- Evaluate the feasibility of multiple communication path contingencies to be activated in the event of a site-wide emergency. These could include video surveillance, alternative phone systems, two-way radios, etc.
- Establish an institutional communication contingency plan identifying mechanisms for regular broadcasting of emergency and recovery status.
- Evaluate accessibility to LANL internal web site from an alternative off-site location for key personnel and for disseminating division and facility-specific information.

3.9 Observation

Lack of an existing institutional framework, processes, and established authorities for conducting facility recovery was problematic.

There were mixed perceptions or confusion as to the scope of responsibility, authority, and role of the Facility Recovery Center. This led to conflicting sets of priorities, directives, and/or authorities between the FRC and those with whom they interfaced, which contributed to contentious interaction from those trying to manage the recovery and

those who felt they had the facility knowledge to do what needed to be done.

Some confusion could be attributed to parallel efforts from the Emergency Operations Center and the Environmental Rehabilitation Team, which often shared personnel with the FRC. There was conflict between FRC lines of authority and individual Division's programmatic re-start efforts. This did not facilitate a smooth transition, leaving some FMs with conflicting directives and loss of any control over programmatic groups.

There was a blurred distinction between re-open and re-start. Because the primary focus of the FRC was to re-open facilities, the FRC did not issue specific criteria for re-starting, which opened the door for different levels of management to press for re-start on unrealistic timelines. DLDOPS, DLDBAO, and ALDNM provided the most support to the FRC's objectives. Others wanted LANL to open fast and get back up, leaving a perception that no one was focused on reasonable safety-drivers for re-opening. In some instances, personnel returned to work sites before fire alarm testing had been finished.

The FRC was challenged in its efforts to manage the recovery effort, both situational and logistically. Site and facility access issues proved to be extremely problematic for the FRC. The badging process was cumbersome, but necessary. Too many types of badges were created, and the result was that PTLA couldn't keep up which was a potential for vulnerability. The lack of pre-established criteria for access or lists of key personnel who would need access left the FRC, at times, to make arbitrary decisions or accept requests as received. This allowed a far greater number of personnel on-site than necessary, prompting potential security and safety concerns.

LESSONS TO BE LEARNED

- Design, develop, and communicate a site-wide access control system along with procedures for emergency and recovery, including pre-identified key personnel.
- Access-control contingencies should be identified for non-LANL resources with specialized capabilities required for certain hazard-specific emergencies.
- Establish and formalize an institutional facility emergency recovery function that considers both short-term and long-term recovery requirements and start- and end- criteria.
- Establish a functional organizational structure with capabilities requirements, roles, responsibilities, and authorities defined for recovery to be activated in the event of an emergency.

- Determine logistical requirements for an institutional facility recovery operation, including physical location, communication mechanisms, identified and trained personnel and database shell with required procedure forms, all of which would enable quick mobilization.

3.10 Observation

Non-existent facility institutional recovery processes and procedures forced creation of ad hoc processes and procedures during the emergency.

The Emergency Management Plan provided insufficient guidance for a Lab-wide emergency recovery. Because no institutional infrastructure existed previously to accommodate a Lab-wide recovery, facility recovery processes and procedures were created ad-hoc. Some felt that the process procedures were too rigorous, changed frequently, and provided incomplete or inadequate guidance, causing confusion and inefficiencies.

Multiple required-signature approvals created bottlenecks. Some estimated 50%of facility management's time was spent on recovery documentation and obtaining signatures.

Inadequate use of a graded approach prevented some from maximizing their efforts to their damaged areas or a redundancy of efforts because facility authorization-basis documentation was in place.

Inadequate "get & go" process procedures up front contributed to significant recovery activities and costs, as well as possible programmatic research lost.

Because of the nature of the emergency, many resources and technologies were not available, causing FRC documentation to be done manually and in hardcopy, contributing to inefficiencies. Of note, the emergency recovery process uncovered institutional gaps, prompting creation of institutional procedures such as for changing equipment on electrical switchgears.

LESSONS TO BE LEARNED

- Establish an effective change-control protocol for emergency and recovery operations.
- Integrate facility and programmatic process into one recovery process, to include division directors, deputies and facility managers.
- Review existing FRC procedures for appropriateness, efficiencies, signature-approval chains, and graded-approach applicability, and create, where feasible, generic templates.
- Review existing FRC data for conversion into an electronic format or databases.

- Train full LANL population, from worker to manager, on emergency recovery processes and expectations.
- Train Division, Facility, JCNNM, DOE FRs, and FWO management on emergency recovery procedures, including participation in emergency recovery scenario exercises.

3.11 Observation

No single institutional entity was responsible for programmatic operations re-start stewardship.

As the Facility Recovery Center worked on getting facilities re-opened, the programmatic side had difficulty getting organized. Many felt that the programmatic side needed a structure parallel to the FRC. When it came time to re-start, FMs weren't telling programmatic "how to" re-start, but more of a "no or yes you can." Left without a chain of command, programs needed a framework. The ISM manager initially assumed responsibility for aspects of the programmatic re-start by issuing some procedures and helpful hints (mostly minimal guidance using ISM), but at least giving people a way to move forward. LANL underestimated the need to focus on the needs of the programmatic side.

Some tried to prioritize needs with their customers, especially those in the nuclear weapons sector. In some cases, other sites in the DOE complex stepped forward to help take over projects. Large- and small-scale projects were impacted. Individual divisions needed to push back on deadlines and commitments. Many organizations were able to maintain good communication with both DOE and their customers on deliverables and in some cases were able to negotiate schedule modifications.

A general lack of understanding of the relationship between facility operations and programmatic operations diminished the coordinated response to the emergency recovery.

LESSONS TO BE LEARNED

- Identify a formal owner in charge of resumption of programmatic operations. Include information about programmatic components of LANL, who is involved, what are priorities, and create a Lab-wide standard for categorizing programs for emergency and recovery activity purposes.
- Develop an institutionally acceptable definition of programmatic work and equipment.

3.12 Observation

Institutional support and response to programmatic impacts were inadequate.

Some organizations are still undergoing recovery work, and feel that the LANL community and management act as if the emergency recovery is completely over. Some have incurred impacts to aspects of programmatic work that could take 2-3 years before scientific/programmatic equipment is all replaced, and in some cases, some capabilities are not being replaced. One division had nearly 20% of its sensitive equipment affected by the fire, requiring specialized equipment service contractors to come in and evaluate what could be salvaged or what needed replacement. Another division has only 30% of its displaced workforce working at full productivity.

One manager was frustrated when programmatic recovery work was halted until the Laboratory found out the status of appropriations, involving delays that could have put the program in a Price-Anderson situation. Time and opportunities were lost during the almost three weeks it took to decide how the Cerro Grande Rehabilitation Project was to be run.

Many organizations fought battles to get money for recovery, feeling it took longer than necessary. With lack of funding, some programs are still not operating for lack of needed equipment replacement. In some cases, structures burned that contained materials needed for programmatic work, and no immediate resolution for replacement was forthcoming. Some program offices went ahead and replaced lost equipment just to keep operations going, and unable to wait for congressional appropriations. Many are still hoping to re-coup costs, but acknowledge they may not be able to.

LESSONS TO BE LEARNED

- Mobilize recovery resources, funding and equipment to facilitate resumption of critical facilities and work.
- Establish institutional advocacy and mechanisms for long-term recovery efforts of impacted programmatic work.

3.13 Observation

Without proper institutional guidance, divisions created their own processes to manage re-start recovery efforts.

When facilities were cleared for re-occupancy, there was a lack of coordinated institutional effort for re-start. Individual program offices had to create their own recovery re-start processes, causing line organizations to do extra work or incur additional costs. Individual divisions set out the task of creating their own recovery plans, guides or flowcharts for programmatic re-start. Those with the greatest damage were able to effectively team with their facility management, but this also put a heavy burden on facility-management operations that were already strapped.

There was little evidence of inter-divisional collaboration in recovery re-start activities. Divisions adopted independent strategies for re-start, with varying degrees of success. Some took a methodological and deliberate approach, while others prioritized and moved as quickly as possible. The variable seemed to be the extent of damage and availability of resources. Many programmatic-staff members were not sure what tools were needed for recovery. Some took existing tools such as Hazard Control Plans and modified them for their needs.

LESSONS TO BE LEARNED

- Establish institutional guidance for programmatic recovery based on return to functional level, assessment of impacts, and a decision tree for conducting limited operations.
- Evaluate program capabilities for recovery under various scenarios; identify best methodologies for institutional resource support.
- Identify and develop a tool set appropriate for programmatic re-start activities.

4.0 Support Services and Infrastructure

Critical to emergency recovery efforts are those groups and organizations that provide institutional infrastructure support to facilities and programmatic operations. These include JCNNM, FWO, ESH, S, BUS, and CCN/IM. Early on, ESH, FWO, & JCNNM had a presence in the FRC, which helped facilitate facility readiness assessments. But like their counterparts on the facility and programmatic side, they were resource-strapped in regard to managing a recovery effort of this magnitude.

4.1 Observation

JCNNM was involved with the FRC from the beginning, appointing a liaison to interface between JCNNM and LANL management and to aid facility management in work control. However, lacking a defined institutional recovery role, JCNNM often received conflicting directives from those working recovery, including Utilities, Roads & Grounds, FWO, and the FRC.

During recovery, there was a significant shortage of crafts, especially with Q clearances, to do scheduled work that was not fire-related. As a result, a significant number of long-term activities associated with the fire recovery still have to be done. Sometimes, recovery work would not be conducted because definitive funding sources were not identified to support the extra work, such as fire-alarm testing and construction starts. In some cases, certain JCNNM capabilities were under-utilized, in other

cases, crafts were stretched too thin, sometimes needing to be prevented from working too many hours. Hiring additional workers was too long of a process during an emergency.

JCNNM did find that having an on-site supervisor for each job was a good experience, and is considering this practice for future work to gain efficiency.

LESSONS TO BE LEARNED

- Establish institutional expectations and define support-service contractors' roles and responsibilities during a site-wide emergency recovery operation.
- Identify a LANL single point-of-contact for the Zone supervisor during a site-wide emergency recovery operation.
- Evaluate feasibility of streamlining the hiring process for non-LANL supplemental emergency recovery workers.

4.2 Observation

The facility work-control process was problematic during the recovery phase. Some felt LANL should have left the process, which was streamlined, in emergency mode longer. When the work-control process returned to normal operations, some couldn't get work permits or penetration permits because the system was swamped. Some maintained that the "emergency" work control procedures could be used as a model to streamline the existing process. Others argued the need to return to the standard work-control process due to safety concerns.

FWO-Utility operations were greatly impacted by all three events – fire, recovery, & flood mitigation--and treated them as one large, continuous activity. The scope of this work alone will not be complete for three years.

The type of work that Utilities performs makes it better prepared for emergencies than most other LANL operations; they have to see how things integrate, what are the impacts, and what systems are impacted.

Having contingency plans in place, they lost power for no more than 15 minutes.

Insufficient utility-locator staff prevents 24-hour "on-call" status in emergencies. Some believed that, without available utility locators, bottlenecks are created in the system when trying to expedite excavation permits.

Acting as the institutional entity, FWO-FIRE worked to coordinate surveillance work with JCNNM for the FMs. Insufficient personnel and communication and safety equipment hampered their work. Procedures in place were not adequate for the scope of the fire and recovery. Having to

obtain multiple signatures on documentation was problematic. The ability to prioritize testing requests enabled FWO-FIRE to efficiently utilize their limited resources as best possible, but in many cases they ended up trying to test everything, without the benefit of adequate guidance. Those conducting fire surveys often found there was nothing to identify buildings as “no re-entry or no trespassing,” posing some safety concerns.

The lack of a centralized mechanism for determining critical-spares inventory and lack of knowledge of who maintains ventilation filters created a potential vulnerability as FWO-SEM scrambled to find HEPA-filter replacements for facilities operating under an authorization basis.

Facility data (building lists/facility lists) are not correct or consistent, which proved to be problematic for recovery activities.

LESSONS TO BE LEARNED

- Maintaining flexibility and understanding of systems (knowing what you have) allows for choices during emergency recovery operations.
- Evaluate utilities’ contingency-planning methodology for institutional application.
- Identify critical equipment inventory and develop a mechanism to track facility inventories.
- Identify key facility data and maintain currency of databases.
- Evaluate institutional facility support resources required for emergency recovery efforts.
- Evaluate institutional work process for improvements.

4.3 Observation

How LANL performed during the emergency and recovery operations underscores the value of conducting more realistic emergency-recovery exercises and scenarios, performed with personnel trained to a greater depth. EM&R managed communications into facilities and monitored personnel going into canyons, but did not have an adequate supply of communication devices, such as SWAN radios, to loan, leaving some personnel to double up. But they were able to keep track of everyone in the field and at-risk around the clock without equipment failure.

Controlled access to the site and buildings during the emergency and recovery was also problematic. Both workers and managers bypassed procedures to access buildings before they had been cleared for re-entry, a potential compromise to security and safety. The badging system initiated during the emergency and used until the Laboratory reopened was cumbersome and inefficient, but it did work. Some high-security and hazard FMUs felt a need for both a special badge for recovery

contractors/worker-types, as well as a better orientation to site security & hazard requirements and postings.

LESSONS TO BE LEARNED

- Develop a training and exercise program for a site-wide emergency recovery event.
- Determine appropriate communication-device inventory for a site-wide emergency recovery event.
- Hold staff accountable for observance of all emergency-type procedures.
- Establish a guidance template for subcontractor training and access requirements during an emergency and recovery event.

4.4 Observation

Like other support organizations, ES&H resources were stretched. In addition, the fire and recovery activities exposed possible institutional-process shortcomings during emergency/recovery conditions, for which ESH Division holds responsibility. Some felt that ES&H reviews for all work tickets were not necessary and not only accounted for unnecessary delays in work packages, but also added value in only about 20% of the time. It was felt many things were slowed down initially and wrong information given because managers tried to handle and field information that they were not familiar with.

Lock-out/tag-out procedures proved problematic during the emergency and recovery. Some workers ran out of locks and had to resort to using "informational" tags with green tape, which led to some confusion. In another case, Utilities had to use red tags instead of yellow after checking 123 gas-regulating stations for FMs to check and re-open. Red tags were used because not enough yellow ones were available, coupled with immediacy of required safety actions. This tag usage was in violation of LIR procedures.

Some thought there was a problem with obtaining adequate ES&H resources. For some, it was difficult to know what resources they even needed from ESH Division. It is felt that many of the ES&H recovery activities, such as water sampling, will be, to some degree, ongoing for several years.

The EAP team was heavily involved in early emergency and recovery, but has not been asked to do much in the extended term. There is the concern that there is no mechanism for long-term support offered to groups or teams that have been heavily affected by the emergency. Estimates were given that the psychological and emotional impacts could extend for several years.

LESSONS TO BE LEARNED

- Determine feasibility of modifying ES&H work control requirements; such as ES&R review processes, during emergency and recovery conditions, without compromising ISM principles.
- Determine feasibility of specifically designated LO/TO tags for use in emergency and recovery conditions, developing guidance and training for usage, and maintaining necessary tag inventory.
- Evaluate roles of SMEs and how they are used in decision-making processes during an emergency.
- Enhance communication and utilization of ES&H capabilities, resources, data, and expertise to LANL community.

4.5 Observation

As in many of the other support organizations, BUS was caught in a maelstrom as a result of the emergency and recovery activities. BUS was not prepared, nor staffed adequately, to respond as quickly as needed. Because there were no existing processes or procedures for the scope of the activities, programmatic and facility management were confused and frustrated in just getting the information on costing and taxing they needed. Codes were assigned and re-assigned multiple times, with inadequate guidance for what they would cover. Consequently, recoding activities post-emergency was extremely time-consuming and difficult. Contributing to the confusion, when CGRP became involved, some felt they were given the runaround, with CGRP shifting responsibility back and forth.

For some, it was also problematic to not be able to charge for activities that still involve fire-recovery work; leaving a feeling that not everyone understands that the recovery for some is <u>not</u> over yet.

Although initially manageable, some felt the documentation for procurement was much too involved and proved to be an impediment to moving quickly. One organization spent about 25% of their time trying to obtain procurement assistance.

HR lacked adequate guidance on emergency and recovery time-and - effort and payroll issues.

In many cases, funding for recovery work was not addressed early on. JCNNM was pulled off doing alarm testing due to funding uncertainties, forcing some facility managers to use facility money to test. In the case of nuclear facilities, this testing had to be accomplished so that the facilities remained compliant with their authorization bases.

LESSONS TO BE LEARNED

- Design, develop, and communicate an auditable emergency accounting system, to be activated immediately in the event of a site-wide emergency.
- Develop guidance for accounting, procurement, payroll, etc., during emergency conditions.
- Identify BUS/HR single point-of-contact or lead to act as liaison to facility and programmatic management through completion of recovery.
- BUS/HR representatives should be included in LANL emergency contingency planning.

4.6 Observation

The emergency and recovery highlighted the interconnectedness of LANL's computing infrastructure with programmatic work, and exposed inadequacies in how data is stored at the Laboratory. All records are kept in Otowi and potentially could have been destroyed or damaged. Currently, there is no off-site storage for the data records. Inadequate communication, coordination, and lines of authority between emergency/recovery management entities and those that manage the Laboratory's mission-critical data storage are problematic.

ADSM, a voluntary backup system IM Division offers, may have saved data that was lost in burned transportables, if it had been used. However, some facilities cannot afford the ADSM program and resort to backing up their data on local or Division servers.

Senior managers had set as a goal a number of high priority buildings for re-opening, but underestimated the extent of CCN/IM operations permeates their operations.

LESSONS TO BE LEARNED

- Examine alternative options for an affordable, institution-wide data backup system.
- Establish an off-site data storage facility.
- Establish an institutional computing-infrastructure contingency plan, evaluating interdependencies with facility and programmatic work.
- Establish institutional emergency procedures for mission-critical data in the EMP and include in contingency planning.

5.0 Workers

5.1 Observations

Many of the workers who participated in non-management recovery functions were overworked, feeling stress and pressure to get facilities re-opened and operations re-started. Some felt that management did not adequately spread the work burden across the workers available.

Most felt the short-term emotional/psychological support for workers was good. But a need was expressed for long-term support as well. There was some concern expressed that employees were not seeking counseling assistance because they were fearful of adversely affecting their clearance status.

Some observed a lack of any internal division mechanism for staff who assumed or were assigned roles during the emergency/recovery to transition back to their regular job. It was felt that Divisions and Groups did not always support recovery-effort workers staying with recovery activities, and created pressure to return to normal duty. Some felt there was inadequate acknowledgement of front-line recovery workers who, for 3-4 months, worked extraordinary hours and cancelled vacations to keep recovery operations going.

LESSONS TO BE LEARNED

- Increase emphasis and work toward “zero” goals (zero mistreatment, zero ethics incidents) during *routine* operations, so that during high-stress times negative employee interaction will be mitigated.
- Clarify guidance from DOE regarding employees receiving counseling support and losing security clearances and communicate to workers.
- Acknowledge workers up the management chain; reward workers appropriately.
- Communicate institutional expectations for recovery work to divisions, groups, and workers and negotiate where continuing institutional recovery work may be a burden on an organization.

5.2 Worker Survey

There were 62 responses. Approximately half of those responding performed work tasks related to recovery for some period of time following the fire. About a third of the respondents experienced physical affects of the fire at their workplace (ranging from smoke and ash to destroyed buildings), and about a quarter of the respondents still have recovery operations ongoing in their work areas. Of this twenty-five percent, there

were some reports that recovery activities continue to impact workers' ability to do jobs, and that there is concern about these recovery activities impacting job funding and resources.

Comments collected from the surveys indicate that the ability to do work has been affected by the need to wait for resources (supplies, services, funding). Several comments make a connection between the volume of work involved in recovery activities, the limitations of current staffing across the Laboratory, and being behind in "normal" work activities, even in areas where recovery activities are no longer taking place. There is also recognition that recovery has over-worked some employees.

Comments also reflect that while no one was prepared for an emergency of this magnitude, there were varying levels of preparedness for emergencies in facilities across the Laboratory, and that there was some sense of an ability to respond effectively and knowledgeably within most groups and organizations. There are suggestions for improving procedures and streamlining re-start of facilities, and concerns regarding authority and responsibility and clear chains-of-command. Responses about the availability of information and communications regarding recovery resources and status varied considerably, and there were many suggestions that communications be improved. (See Attachment C, Worker Survey Summary.)

6.0 Attachments

Attachment 1: Acronym List

Attachment 2: Interviewee List

Attachment 3: Worker Survey Response Summary

Attachment 1: Acronym List

ADSM	Adstar Distributed Storage Manager
ALDNW	Associate Laboratory Director Nuclear Weapons
BUS	Business Operations Division
CGRP	Cerro Grande Recovery Project
CCN	Computing, Communications, & Networking Division
DLDOPS	Deputy Laboratory Director Operations
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
DOE-AL	Department of Energy-Albuquerque
DOE-LAAO	Department of Energy-Los Alamos Area Office
EAP	Employee Assistance Program
EMP	Emergency Management Plan
EOC	Emergency Operations Center
ERT	Environmental Rehabilitation Team
ES&H	Environment, Safety, And Health
ESH	Environment, Safety, & Health Division
FM	facility manager
FMU	facility management unit
FR	facility representative
FRC	Facility Recovery Center
FWO	Facility & Waste Operations Division
HEPA	high-efficiency particulate air/absorption
IM	Information Management Division
JCNNM	Johnson Controls Northern New Mexico
LANL	Los Alamos National Laboratory
LIM	Laboratory Information Meeting
PMs	preventative maintenance
S	Security Division
SET	senior executive team
SME	subject matter expert

Attachment 2: Interviewee List

Alexander, Scott – NIS-FM
Alexander, Tom - DX-FM
Bell, Bill - DOE-LAAO
Bell, Fred - DOE-LAAO
Brandt, Mike - ESH-5
Brodd, Ron - FWO-DF
Burns, Carol - C-DO
Castaneda, Danny - JCNNM
Covey, Jim – PM-DS
Crespin, Thomas - ESH-5
Daly, Sharon - S-2
Derkacs, Dennis - NIS-FM
England, Bill - FWO-IIM
Erhart, Steve - DOE-AL
Farris, Rob -FWO-FIRE
Flor, Bill - ESH-10
George, Tori - FWO-DO
Gibbs, Scott - NW-MM
Grace, Bob - ESA-FM
Grise, Jim - FWO-FMS
Harris, Mitch - FWO-SEM
Helmick, Sara - C-FM
Huchton, Judith - ESA-FM
Hurdle, Bob - ESH-3/FWO-FMS
Lattin, Tracy - BUS-3
Lemons, Ross – MST-DO
Locke, Tom - ESH-2
McAtee, Lee - ESH-DO
McCorkle, Wally - FWO-FMS
McLain, Dennis - FWO-WFM
McNight, Larry - JCNNM
Merhege, John – JCNMM
Oldenborg, Rich – C-PCS
Orr, Keith – PM-DS
Padilla, David - FWO-UTIL
Pellete, Phil - NIS-18
Perea, Jake - DX-DO
Pinkston, Sid - FWO-FIRE
Post, Dave - PM-DO
Rae, Steve - ESH-18
Ramsey, Beverly - FWO-DO
Rich, Gary – IM-6
Robinson, Melissa – BUS-3
Ruminer, John, ESA-DO
Sanchez, Matt – ESH-3
Smith, Virginia – Adelante Consulting, Inc
Stanford, Tony - FWO-DO
Stavert, Doug - ESH-17
Thomas, Dan - P-FM
Thullen, Phil - ESH-ISM
Vantiem, George - S-8
Wagner, Sandy – C-INC
Wampler, Cheryl – CCN-7
Yearwood, Diedra – NMT-8

Attachment 3: Worker Survey Response Summary

Survey Question #1: Did normal job function change during recovery period?

Most performed normal job function, with added "recovery" activities, during the first few days after returning. These activities included things such as:

- inspecting, cleaning buildings
- walk-downs and re-opening buildings
- providing wildlife awareness
- performing field assessments/field-site visits
- re-start operations
- cleaning computers
- responding to others' questions, concerns, problems, etc.
- planning emergency actions after fire
- badging/controlling access
- rescheduling missed activities
- safety/start-up meetings
- fire/flood recovery and remediation

Negatives:

- work depended on others who weren't back to operational: bored, non-productive; work too much in lock-step with others
- start-up delays and safety issues – not fire-related
- Some normal operations stopped because of recovery operations
- Increased work load – normal work plus . . .
- Hard to get back into things, to remember where things left off

Survey Question #2: If you were involved in recovery-related work, did you have sufficient knowledge and training for the work you performed?

Only about half of those responding to the survey either felt this question was not applicable or gave no response. Of those that responded, only one person answered NO, with the following comment:

> I doubt that any of us were prepared for this. I have participated in post-fire recovery efforts but the magnitude and intensity of this effort was greater than anything I have heard of. I did have fire training and the appropriate field gear to allow me to work with the BAER team.

Of those answering YES, one stated that for the most part they had sufficient knowledge and training, and that in circumstances where lacking important skills or knowledge they found expertise elsewhere.

The remainder answering YES generally stated the following reasons of why they felt they had sufficient skills and knowledge to perform recovery-related work performed:

> Given specific instructions, forms
>
> Large network of contacts within the Laboratory and good knowledge of the physical setting
>
> Professional training, education, and experience related to activities
>
> Previous participation in recovery activities
>
> Various internal and external training already taken
>
> Steps for recovery were standard assessment and operational activities
>
> Often, in addition to one of the above, managers/team leaders held meetings and kept workers informed.

Survey Question #3: Was there an impact to your physical workplace when you returned from the two-week shutdown?

Over half of the responses indicated that there was not an impact to their physical workplace when they returned. Of those NO responses, many went on to say that there were minor impacts, such as:

Strong-to-moderate smoky smell

Small traces of dust/ash and smoke odor

Some soot

Air filters had to be changed

Those who responded YES experienced varied degrees of impact, from ventilation to actual lost buildings, etc. Others reported burned vegetation and external items, such as picnic tables. Below, these are broken out by severity:

Extensive to Moderate to Low

- lost multiple buildings, damage to additional structures
- lost modular units
- fire burned through entire area, caused varied degrees of damage
- equipment damage due to electricity off and on status
- lost HEPA filters, causing hazardous environment inside buildings
- burned trees blocking roadways; those near buildings had to be removed
- canyon completely burned
- soot, ash and debris had to be removed, air filters cleaned/buildings aired out
- empty and clean refrigerators

Note that many of those who answered NO had the same comment as those who answered YES. The ventilation, smoke, soot, etc. were common throughout. Also, many indicated damage outside their actual workplace (surrounding area outside of building) and the smoky smell in some cases did not ease for a week.

Survey Question #4: At any time, did you feel your workspace/workplace was unsafe when you returned?

Of the 62 responses to this question, only 3 answered YES. The reasons for their concerns were:

- Local wildlife coming into the Lab sites – rattlers, mice (hantavirus), etc.
- Potential for flooding
- Wondered if oxygen content was adequate when entering their area
- Lack of information seemed like a concern – felt they may not have been given enough information to decide if they were safe or not.

A few of the ones who answered NO had comments that indicated a little uneasiness, but not entirely unsafe feelings. Those comments were:

Experienced some headaches/eye irritation, etc., from the smoke in office and building

Felt unsafe in general after the fire

Survey Question #5: Were you prevented from performing your normal job duties when you returned from the two-week shutdown?

Three fourths of the responses were NO, a few of which added comments, as stated below:

- didn't "return" after shutdown – never left during the two weeks
- normal duties were safety assessments of work places
- work was somewhat slack until stormwater/runoff sampling and flow data was needed
- people no longer came to wellness center, no need for classes

The one fourth of YES responses had varying degrees of being prevented from normal job duties, the least of which were:

- a few days until the facility was given the green "OK to work" status, waiting for facility walkdown
- things were very slow at first – spent too much time waiting for others (a necessary inconvenience)
- much time and effort getting tenants back to work and buildings performing at pre-fire levels. Several are still involved in recovery procedures.

Many others had to put their normal work on hold or re-prioritize the work due to recovery efforts and assignments, which took all their time. These comments are from that group of responses:

- maintenance on hold until facility inspections completed
- security access problems made it difficult to get onto LANL property and assess impact of fire and design appropriate mitigations
- access to work area restricted for extended period of time
- continued work on recovery, post-fire/pre-flood activities
- executing fire recovery activities to allow others to return to work kept own projects on hold

Several are still involved with recovery procedures – still scrambling to get things wrapped up. A comment was made that it would be good if the facilities could work out emergency access procedures for the future.

Survey Question #6: Were you adequately informed regarding LANL Recovery activities?

There were only seven NO responses. Some felt that the only information available was through the news media, that information from the Laboratory to its employees was lacking to non-existent. Once back at the Laboratory, the following responses were given:

- sometimes informed
- instructed by supervisor to report to workplace/building in search of someone who could give me facility readiness status information
- much of the information received was second- and third-hand
- even though directly involved with some activities, information flow could have been substantially improved – mostly a coordination issue.

Of the YES responses, few offered comments. Those were:

- adequate information – well informed of facility's recovery
- somewhat confusing at the beginning because there seemed to be two parallel management structures, FRC & EOC
- briefed at least once following the 7:00 managers briefing
- informed by upper management
- had representative attending the morning FWO meetings and were also linked to the ESH-ID process – regardless, plans were developed quickly and were changed quickly, which made it difficult to be certain what actions were being taken
- the Lab and media did a great job of keeping people informed.

Survey Question #7: Were you aware of the existence and function of the LANL Facility Recovery Center (FRC)?

About one-fourth of the respondents were not aware of the FRC. Some just knew of the EOC, some were not aware of the FRC being an official recovery center, others learned of the FRC only upon return to work or when they began working for the FRC directly after the shutdown.

Of those answering YES, some "just figured there was someone handling the recovery," while others were told by management. Those that were well aware of the FRC made the following comments:

- members of group were very much involved in this effort
- interacted with FRC several times a day
- participated in this in the early stages of operation
- good newspaper and Newsbulletin coverage of this service
- workers and FMs worked very closely with FRC
- supplied SMEs to staff FRC
- worked out of the FRC but found many of my counterparts were unaware of its existence

Only one negative comment was made. This respondent stated "Yes, unfortunately" they were aware of the FRC.

Survey Question #8: Are recovery activities still being performed in your workspace/workplace?

One-fourth of the responses stated that recovery activities are still being performed in their workspace/workplace. Those who elaborated provided the following comments:

- the need for erosion controls and watershed rehabilitation will be ongoing for several years – office workspace is fine
- replacement of fire-damaged or lost items and recharging post-fire facility rehabilitation
- work in ESH Division – too much going on to explain in this small space
- removal of burned-out trailer recently completed, outfitting new office space for displaced staff still in process
- repairs to facilities damaged during the fire continue
- scheduled to participate in fire related cleanup activities
- trees need to be cut, erosion control, seeding, etc.
- still doing recovery-related procedures
- recovery activities in workspace are complete, but are still going on in parts of the FMU

Survey Question #9: Are these current Recovery activities impacting your ability to perform your job?

This question did not apply to approximately half of those who responded. Of the remaining 29 surveys, 24 answered NO – some with the comment that what they are doing for recovery is what they normally do, only more intense. Of the five YES responses, one was not fire-related, and the remaining four comments are below.

- Medium impact based on lack of space to immediately house staff who were displaced.
- The prohibition against using many pathways is ridiculous, given that many of them already have been driven over numerous times by trucks; there is no reason to keep them closed – excessive caution keeps us from doing our jobs and does not improve safety.
- Just some more duties and responsibilities added to an already practically impossible job
- Haven't done regular work for over 16 weeks

Survey Question #10: Are these current Recovery activities impacting your job funding or resources?

Most of the respondents answered NO or gave No Response to this question. Only nine responded YES, and impact to either primarily funding, or lack of funding and its impact on resources divided these. The statements below indicate the issues of those still involved in recovery efforts:

- if the money don't come, the work don't get done
- approximately $100K of equipment and facility costs could come from the Division budget unless fire funding is provided
- presumably. some of my funding will be fire-related
- budget severely restricted – assume the reason is all the millions poured into recovery, much for excessive busy-work

Change in workload is also being associated with the recovery activities at the laboratory:

- activities have affected resources, both personnel and financial
- damaged LANL facilities have placed some of my current job assignments, designs, on hold pending completion of their recovery activities
- activities have added to my workload – such as this web page
- group donated my time to recovery effort

ADDITIONAL LESSONS TO BE LEARNED, COMMENTS, CONCERNS, ISSUES, OR QUESTIONS:

Half of those who submitted surveys had additional comments, concerns, issues, lessons learned, and/or questions. About one-fourth of those wanted to show gratitude to those who worked so hard and gave so much during the fire and recovery efforts. Others wanted to express concerns related to work and the impact on fellow workers, their projects and such as that. Some were most concerned that the trails had been set as “off limits” even though they could see no real danger in using those trails. Below is a summary of the main groupings of responses:

COMMUNICATION

- Communication between the Laboratory and the multitude of other local, state, and federal agencies could have been better.
- More communication between the upper/middle management and its employee’s is vital. The media coverage was somewhat unreliable and really not a trusted source of information.
- LANL needs to do a much better job of communicating with its employees. Leaving it up to the media was ridiculous. Also, when the Lab Director tells employees not to report to work, subordinates should not override his orders. My wife was directed to report to work in White Rock in direct violation of the Director’s order.
- LANL needs a better personnel accountability system. LANL was not aware of the locations of personnel in many cases during the evacuation.
- It would have been nice if ALL FWO employees had access to the same information. Most people learned of what was going on through television media, which at times was misleading.
- Only a few people heard a report on one of the radio stations that stated that the fire officials felt the situation was very grave (50/50 chance of saving the Lab and town site) and advised people to be aware and prepared. Why weren’t a lot of other people privy to that information? – They might have been able to save their belongings and their work.
- FMU should be responsible for notifying personnel that enter into their space of any post-fire safety issues that may be relevant. If active operations are back to normal, then they should relay that information and not assume that personnel would know it.
- The institution needs a mechanism for employees to report their whereabouts during evacuations. Trying to get in touch with employees to verify return-to-work was a headache.

COMMUNICATION – *continued*

- The Red Cross system was useless, because most folks did not register at the shelters – those that did were listed on the paper in the shelter they first visited, but this had no correlation with their real whereabouts.
- Disaster recovery should include an answering service, voice mail, or web site for employees to contact. It should operate even if the facilities are destroyed. It could be put in place at the time of the emergency, but a plan is needed beforehand.
- There are still green facility-ready signs on many doors. They should probably come down. Haven't been given that word. (this could be a "process improvement" comment)

ROLES AND RESPONSIBILITIES/ORGANIZATIONAL ISSUES

- It was obvious that areas of expertise within the Laboratory overlapped from Division to Division, so it was difficult to determine who was in charge of what (i.e., modeling).
- Because a member of upper management (stationed in the EOC) did not understand the process established by the FRC for bringing buildings back on line, troops at the bottom of the food chain were given conflicting instructions and yelled at.
- Although it is not always easy in this kind of situation, instructions or changes in instructions MUST be passed through the established chain of command to avoid disrupting any more than necessary the people trying to get the work done.
- I am concerned about how we plan to monitor our long-term recovery and integrate future actions (if necessary) with the Forest Service and Pueblos. I would like to see, and participate in, a multi-agency, cooperative effort to monitor recovery and develop future actions should they be necessary. The fire was a broad-scale disturbance and we all worked well together in the initial emergency.
- I am concerned that other divisions – for example, HR in particular – have been hit rather heavily not by the fire itself but its impact on the employees. As a result, they seem to be understandably but rather unfortunately overburdened.

ROLES AND RESPONSIBILITIES/ORGANIZATIONAL ISSUES – *continued*

- We need to continue the collaboration and communication to assure that all of our resources are protected. Thank you for the opportunity to comment.
- There should have been a faster/simpler graded approach system for assessing and re-opening buildings where the fire did not even enter the TA. The FM should have been given the authority to sign off on those buildings.
- The system of posting and re-posting buildings could have been improved (for faster more reliable posting). In a few instances people entered a building that was still posted “Red” because it was on the “green” building list. A suggestion was made that, where there was no damage from the fire, the Safety Recon Team should be allowed to re-post the building “Facility Green” and also “Group Green,” if a group member was a part of the recon team.
- Some of the FRC procedures and steps were too onerous. The FM should be able to review and decide whether or not to implement parts of FRC procedures/instructions
- Lack of key control presented a problem for accessing buildings. Key custodian is not empowered to manage locks and keys. Locks are being changed too casually and frequently.
- Getting assistance from key operating personnel to perform facility recovery operations provided much needed help to the FM recovery team. It also had the benefit of letting the group see what the damage was and what all we had to accomplish. Looking back we should have done this sooner and asked for more help from the groups.
- One impact is that scarce funds we had allocated for special projects critical to our work were diminished because of decisions that were made on how recharge organizations were to recover their costs. I believe their decision made was not entirely fair to those organizations with very tight budgets who were “taxed” in a sense to cover those recharge costs.

RECOGNITION/APPRECIATION

- I think the Facility Recovery Team did an excellent job.
- Several people from FWO, ESH, ER, EES, EMR (& others?) should be individually recognized for their huge efforts on the Laboratory rehabilitation.
- Driving to work after the fire, it was obvious how close it came to many LANL buildings. It must have taken firefighters as well as others involved tremendous effort to save many facilities. I wish to express my appreciation for everyone's efforts during and after the fire.
- Keep up the good work.
- I think the Lab has done a great job. Some of the steps taken by the ACOE seem extreme, yet, if we have the rain event, everyone will appreciate the effort. If not, everyone will second guess the effort and say we did too much for the risk. I think it was about right.
- I don't have any criticisms or comments on how to do it better. I thought that the efforts of the LANL recovery team were superb, considering the circumstances. I also appreciate the efforts of all of the Lab Management who decided to keep the Lab closed for two days prior to the main evacuation (even under strong opposition from upper management). I think that the Lab teams did a great job.
- Ed Christie, DOE-FR, complemented DX managers and the recovery teams for going above and beyond on safety and recovery efforts after the Cerro Grande Fire.

PROCESS IMPROVEMENTS NEEDED

- The use of cellular phones in secure areas should be standardized throughout the Laboratory (DX and ESA had a different set of rules during recovery work).
- We need to reemphasize to personnel the importance of backing up data and information contained on personal computers, not only via ZIP/JAZ type drives, floppy disks, etc., but also to separate and non-co-located file servers, ADSM, or off-site storage.
- LANL needs better-centralized records storage. Many irreplaceable records (i.e., drawings, project files, etc.) were lost during the fire because these records had not been backed up in a safe place.
- Records management: TA-59 includes not just ESH-1, but also included the Division Office.
- We need to start an aggressive tree-felling program to bring all our tree stands into the proper 100 to 150 trees per acre. Mother nature has given some of our areas a reprieve. We should take advantage of it prior to the next fire season. As a community and Laboratory we need to become far more aggressive with prevention of major wildfire by mechanical manipulation of the forests. Then determine where we are willing to simply "let it burn" and go with the plan. Our professionals working along side the USFS and USPS provide us the best expertise we could ask for, so we should use their services to maximum benefit.
- Assigning recovery teams to tackle all buildings at a given TA would have sped up the recovery process. In addition, the team would know better what buildings they had done and needed to do.
- We should have kept most people away from DX facilities for a few more days until the FM staff had time to complete most of the building assessments and re-post the buildings.
- Designating only one person to sign the recovery paperwork for each building was silly. There was no possible way that she could certify that each building was safe. I carried a stack of papers to her and she signed each one, but had no idea if any of the information was true or not. The authority to reopen each and every building at LANL should have been delegated to the FMs. The lab is much too big to operate without delegating authority.
- The three-person rule should have been converted to a two-person rule for the facility building inspections much sooner. This would have speeded up the process. Also, if a group person had been part of each facility building inspection team, the group approval could have been done at the same time as the facility approval (where appropriate), to eliminate redundant visits and speed up process.
- Remember the expression, "Before the event, planning is everything, but during the event plans are useless." You have to trust your people and allow us to

make decisions in the field based on local conditions.

- There was a tremendous waste of manpower associated with re-opening our facilities. Requiring a team of three to survey into buildings that were in areas known to be unaffected by the fire was useless. Having to complete 5 or 6 forms for places like DARHT and PHERMEX and for each of the dozens of buildings around them and then do recovery plans on top of it accomplished nothing but consume time, money, and manpower. We should have been able to say, “The fire didn’t enter this area” and be done with it.
- Teams assigned to buildings within a TA conducted inspections of facilities. Multiple teams were working in each TA. A single team did not have all of the buildings in a TA. This arrangement resulted in wasted time while teams went from one area a TA back to another area of the TA to inspect the next building on the list.
- Need emergency plan in place.
- Debate over what constituted critical facilities or data and delayed access to those resources significantly hampered recovery progress. Inability to access critical data because it was in a “low-priority” structure delayed recovery efforts and prevented us from responding to internal and external requests for information regarding health and safety of the public and recovery workers, environmental protection, and contaminant migration.
- There are still green facility ready signs on many doors. They should probably come down. Haven’t received that word.
- A better methodology next time would be to assign a team to all buildings within a TA. Multiple teams could be assigned to the larger TAs by assigning physical groupings of buildings to separate teams. The inspection of and completion of the Fire Recovery Inspection Reports would have been more efficient, thus allowing facilities to be opened for occupancy sooner.
- The way that temporary access badges were issued was absurd. We had to drive to White Rock and hope that the courier was there to issue them to us. It would have made much more sense to set up a temporary badge office, probably in the State Police van at the hospital parking lot. This would have cut out a lot of the useless traffic.
- We need up-to-date and accurate structure maps available at the FM office.
- DX required us to have separate visits to declare a building facility safe and then on a separate visit certify it as operationally safe, even for the majority of cases where the fire clearly had not come even close. A single visit would have been sufficient.
- I would like to see special effort put into evaluating what was learned about Laboratory ventilation systems. As you likely know, one of the most costly losses of the fire was to a clean room at TA-48. PF-4 took some precautions with its ventilation system and I assume went through a re-start procedure. I am not aware of what happened in other facilities such as CMR. I think it would be good

for the Lab to share its experience in this area with Lab employees in general and with other DOE nuclear facilities that may face such circumstances in the future. Many of these other DOE facilities complied with other urgent request for filters. I see sharing such lessons as a “thanks” for their help.

- As a member of the FMU67 inspection team for fire recovery, the one thing that stood out as a real problem was the lack of keys to enter many buildings.
- The townsite evacuation on May 10 was poorly coordinated and executed. Obviously there was no procedure or plan in place.

MISCELLANEOUS

- Other personnel, while doing a commendable job, should have been forced to get some rest or take breaks off the hill, once things became less intense, as their interpersonal interactions were not of the highest caliber. The stress was such that no matter what position a person holds, it is not good for either them, or the overall safety of LANL, for people to be so “burned out.”
- The fire had very little impact on me personally except for financial loss because I was not working. It affected our work for about two weeks after the fire because of the increased workload of catching up. Overall the impact was minimal.
- I believe the Core of Engineers came in here with a free ticket to do what ever they wanted to (busy/practice work) at a great cost both monetarily and environmentally. Timber in the national forest service area surrounding the Lab contains millions of salvageable board feet and it appears it just going to be left to go to waste. This wood should be harvested.
- While working as a radio officer for the Red Cross on May 8, I requested of the LANL EOC that they open up the Otowi Cafeteria to feed all of the emergency workers. This was refused because the ventilation was turned off in TA-3 or for other trivial reasons. Instead, the volunteers at the Elks and VFW were forced to work very hard attempting to feed everyone. They did a magnificent job, but it seems that the largest feeding facility in the county should have been thrown into this effort. Even if TA-3 had been closed on May 10, it could have been opened up again on the 11 or 12.
- An issue. In a conservative approach to the protection of employees from potential hazards (falling branches, smoldering embers, a rare flood, mud, displaced animals) a vast majority of trails, canyons, paths, and even roads have been closed to hikers, walkers, bikers, etc. Although there is a concern for safety during this time, some of which is warranted, there should also be consideration for the need for exercise. With most of the surrounding National Forest also closed (ski hill, nearby roads, etc.), the options for necessary outdoor exercise have been severely limited. And yet this exercise is very important for health maintenance. Although I have seen great concern for safety from perceived hazards, I feel that some of this is over-conservative and some

of the closures are hastily implemented without a real analysis of the hazard. I see little or no effort being made to offer alternative options or to release the closures. I also see many violations as frustrated employees go ahead and exercise.

- I would like to see the jogging trails in the canyons and other areas re-opened at the earliest opportunity.
- As all employees were continuously told where not to go to exercise (Los Alamos is a health-oriented crowd, isn't it?) we were *not* told what options WERE open to us. This would have been a better approach, i.e., the LA High school track, the YMCA, areas that are open.
- When will contractors receive OT or vacation for hours they worked during the fire/shutdown?